

4—CUBARIS SPENCERI, A NEW TERRESTRIAL ISOPOD, FROM THE
NORTHERN TERRITORY OF AUSTRALIA

by

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INTRODUCTION.

The Isopod, which forms the subject of this paper, was collected by Professor W. Baldwin-Spencer in 1911, from the Little Red Lily Swamp, Roper R., Northern Territory, Australia, and belongs to the family Armadillidiidae. In recognition of the collector I have named this new species *Cubaris spenceri*. It differs from *Cubaris*, Brandt, in having the frontal marginal line cleft. In this respect it agrees with Chilton's species *C. helmsianus* from Barrington Tops and the species referred by Stebbing to *C. cinctutus* (Kinahan), described in Willey's Zoological Results, Pt. V.: also with *C. ambitiosus* of Budde-Lund. In each of these species the amount of indentation is different, the species under discussion having the most pronounced cleft. The depression in the case of *Cubaris spenceri* is deeper and wider, and more triangular in shape than in *C. helmsianus*. In the case of *C. cinctutus* the cleft is narrow and deep. In addition *C. spenceri* differs from *Cubaris*, Brandt, in the absence of coxopodites on the epimera. At some later date these species may have to be removed from *Cubaris* and transferred to a new genus. *C. spenceri* differs from Chilton's species in having three spines on the terminal segment instead of two ridges. By comparison of the two papers other differences, not mentioned here, will be found. These I consider to be of less importance. Reference to Chilton's paper will supply the necessary facts. From the literature available no references have been found to any Cubarid in which a cleft telson has been observed. For this reason it has been classified as a new species.

Cubaris spenceri, sp. nov.

Pl. III.

The following description is taken from a male specimen.

Body (Pl. III—fig. 1):—oblong oval in shape, slightly convex and capable of being rolled into a ball. When outstretched it has, in the larger specimens, a flattened appearance due to the extensive development of the epimera; surface scale-clad and tuberculate, with, in addition, scattered setae and "schuppenborsten" (Wahrberg). The tubercles are regularly arranged and more prominent on the posterior than on the anterior segments.

Cephalon (Pl. III—fig. 2):—flanked by the epimera of the first mesosomatic segment, upper surface tuberculate; the sides are lobate, the posterior margin practically straight, but with a median transverse ridge just above it giving a raised appearance in the mid-line, anterior margin well-defined, lateral lobes present, and on either side of the mid-line, with their bases almost confluent with the anterior marginal line, are two prominent raised ridges; anterior and posterior margins distinct, the former extending to meet

the vertical marginal line, which runs obliquely through the pleural parts of the head to meet its dorsal border. The vertical marginal line also meets the frontal marginal line. The Clypeus is short, convex, tuberculate, and more than twice as long as broad. Epistome slopes inwards, and at the frontal marginal line is out-turned, its surface uneven, being convex laterally and in the mid-line. The posterior portion of the mid-line is hollowed due to a swelling on either side, corresponding in position to the ridges on the cephalon. The frontal marginal line is very prominent laterally, being raised on either side into a crest but the central part is less marked. The supra-antennary line is high. The antennal rings are well-marked and slightly oblique in position.

Eyes:—moderately large, compound, and lateral in position situated halfway between the anterior and posterior margins.

Segments of Mesosome:—sub-equal in length, with the exception of the first which is longer than the others and has its anterior margin convex and thickened, posterior margins of segments one to five are practically straight, those of the sixth and seventh distinctly concave. The dorsal surface of each segment has ornamentation in the form of tubercles and ridges. On each of the segments is a median longitudinal ridge, which is only faintly marked on the first three segments, but which shows very definitely on the last four. In addition to these are, on either side, a number of tubercles which, as in the case of the ridges, are more marked on the posterior than on the anterior segments. These tubercles are definite in number and their arrangement can be seen from the figure (Pl. III—fig. 1). The first segment has, in addition to these, slight swellings towards the anterior margin, on either side of the mid-line.

Epimera:—large, flattened and recurved, margins fringed with short fine setae. The posterior angles of the first pair are acute, similarly those of the second, third and fourth, the angles of the fifth, sixth and seventh tending to approach right angles. No definite coxopodites are present on the undersides of any of the epimera.

Metasome:—continuous in outline with the mesosome. The first five segments are sub-equal in length. The lateral portions of the first two are covered by the epimera of the last mesosomatic segment, those of segments three to five being large, flattened and recurved. A single median ridge is present on each of the first two segments, but the third, fourth and fifth have in addition to this two lateral tubercles, one on either side of the mid-line.

Terminal segment (Pl. III—fig. 8):—tetragonal in shape, constricted in the middle, and broader at the base than at the apex, armed anteriorly with two tubercles, one on each side of the median line. Posteriorly is a single median elongated ridge; anterior portion convex, posterior flattened and up-turned. The posterior margin is truncate, fringed with setae, and has a deep median cleft.

Uropods (Pl. III—figs. 9 and 10):—roughly tetragonal in shape with the inner margin inflected, anteriorly is a thickened portion. Attached as far forward as possible, on the inner mesial border is the endopodite, which is more than half the length of the basal joint, setose and with a long apical spine. The exopodite is small, not visible from the ventral surface, and attached to the basal joint towards its inner border, halfway between the anterior and posterior margins. At the point of attachment is a prominent

ridge. It is also setose, with a single apical spine. Setae are present on the margins of the basal joint. The uropoda are continuous in outline with the terminal segment, and do not project beyond.

Antennules:—small, scarcely reaching to the posterior margins of the antennal orbits; proximal joint (Pl. III—fig. 3) is large, the second very short and narrower than the first, the third more slender and longer than the second, but shorter than the first; joints not situated in the middle of one another but towards the outer side, making the outer margin almost straight and the inner irregular; first and second joints devoid of setae, but sensory setae present on the distal joint, sub-apical in position and situated towards the inner side, stout in appearance, numerous and arranged in a compact group. The outer side of the distal joint is produced in a spine.

Antennae (Pl. III—fig. 4):—short, slender and setose, in their folded position reaching about two-thirds of the way down the epimera of the first mesosomatic segment; first joint is short, less than one-half the length of second, third shorter than the second, second and fourth sub-equal; the fifth longer and more slender than the fourth. The flagellum is slightly shorter than the terminal joint of the peduncle, and has its first joint only about one-fourth shorter than the second. The sensory process is well-formed and has a long basal portion, marked off from the apical portion by two short spinous setae. In addition to these a number of other setae are present on the basal portion—apparently, three short and three long—one above the other on each side. Surrounding the apical portion are a number of spinous setae of equal height.

First maxilla:—outer lobe broader than the inner, and armed apically with nine setae, inner five single pointed, and less chitinous than the outer four, which are also simple; outer distal margin fringed with setae; inner lobe has the outer apical point produced in a tooth and bears terminally two stout bushy setae.

Second maxilla (Pl. III—fig. 5):—outer and inner lobes practically equal in height, angularly produced near its base, inner lobe more chitinous than the outer. Both have a covering of setae, which tends to be fine and long on the outer lobe, short and spinous on the inner. A number of long setae are present towards the inner margin of the outer lobe, at the point where the two lobes touch.

Maxilliped:—basal joint roughly rectangular, the second with the outer margin curved, endite truncate apically with inner apical point acute, outer rounded. Three moderately long, strong spines are situated towards its apex. The endopodite longer than the endite, bears on its inner margin two groups of setae, each of which has one long spine. On the outer margin are two single setae, and at the apex is a tuft of numerous short setae. The first joint of the endopodite has two long spines situated close to each other. The epipodite reaches more than halfway up the basal joint and has its apex sub-acute. The terminal portion is figured. (Pl. III—fig. 6.)

Upper lip:—rounded, short and without setae. *Left mandible* (Pl. III—fig. 7):—both cutting edges strongly chitinous, the outer consisting of three large teeth, one of which is bilobed; the inner, of four teeth; ciliated lappet very evident, rounded and extremely setose. Three penicilla are present (P. 1 + 2), two occurring on the ciliated lappet, one below; and also the usual large bushy seta. *Right mandible*:—outer cutting edge composed of

two large bi-lobed, chitinous teeth, the less chitinous inner cutting edge indefinite in form, appearing to consist of a single tooth showing bi-lobation; ciliated lappet setose, less prominent than in the left mandible, and irregular in form, bears a single penicillum, another being present below it (P. 1 + 1). The seta representing the molar tubercle is the same as that occurring on the left.

Lower lip:—two lateral lobes setose distally, with their apical margins armed with a number of short spines inwardly directed; median portion is setose and appears to be divided into lobes, each of which is rounded apically.

Walking legs:—rather feebly developed and increase in length posteriorly from the first to the seventh; second to the seventh the same in form and proportion, the first differing from them in having the carpus and propodus swollen, more particularly the carpus, and proportionately shorter than the remaining joints. In all the ornamentation of the spines and setae is along similar lines, the carpus and merus of the first four pairs being, however, more profusely armed than in the remainder. The basis : ischium : merus : carpus : propodus : dactylos as 3.2:1.6:1:1.6:.5 in all except the first which has the proportions as 3.2:1.6:1:1.4:1.2:.3.

The joints of the first pair of legs are proportionately wider than those of the remaining legs. The basis is rectangular in shape and has both the inner and outer margins covered with fine setae, one or two longer spines being present at the apex of the inner margin.

As in the case of the basis, the ischium, which in form is roughly rectangular, with the upper end slightly swollen, has its margins finely setose, two spines being present at the distal end, one on either side.

The merus is further differentiated tending to be triangular in shape, with the apex rounded at the lower end. Its outer margin is finely setose with two large spines at the upper end. The inner margin is profusely armed, except in the case of the last three pairs of legs, as mentioned above, which have the spines fewer in number and also the majority of smaller size. The carpus is swollen in the first pair of legs, rectangular in the remainder. In all the outer margin is finely setose, the inner of the first four pairs profusely armed with setae of unequal length, but of the same form, of the last three, less profusely armed. The rectangular propodus, slightly widened at the lower end has its outer margin finely setose, the inner armed with spines. As mentioned above in the first pair of legs it is swollen. The dactylos is simple, setose at the base, and has a long simple spine at the inner apical margin.

Pleopods:—overlap one another from before backwards, and in the five pairs tracheae are present in the exopodites. The exopodites of the first pair are almost rectangular with no setae, and lie parallel with the basal joint. In the second pair they have their apices drawn out, in each case, into a long process with a rounded apex, and their outer margins setose, the setae extending part way up the inner margin. The third pair has the exopodites rectangular, with one corner drawn out into a rounded point, is marginally setose and has a number of spines present on the surface. The fourth and fifth pairs are rectangular, with the corner less drawn out than in the case of the third, with setose margins and spines present on their respective surfaces. The endopodites of the first are broad at the base and narrow apically, the apical point provided on the inner side with a number of spines. In the second pair they are two-jointed, with the second joint long drawn out into

a slender pointed process, which extends some distance beyond the end of the exopodite. The endopodites of the third, fourth and fifth pairs are triangular, with rounded apices, gradually decreasing in size from the third to the fifth.

In the *female* all the legs are of the same form and proportion, the first pair not having, as in the male, the carpus and dactylos swollen. It differs further, in having fewer setae on the merus and carpus of the first four pairs of legs, the number of setae being approximately equal in the seven pairs. The general arrangement of the setae is the same as in the male.

As in the male all the pleopods have tracheae. The first and second have the exopodites more or less rectangular in shape, with setose margins, the third and fourth are rectangular with the corners less drawn out than in the male. Their margins are setose and spines are present on the surface. The fifth is smaller and nearer to the male form. The endopodites of one and two are reduced, that of the second being in the form of a small elongated chitinous plate, of the first scarcely apparent. In the case of the third, fourth and fifth the structure is the same as in the male.

A number of females with eggs present in the brood pouch are in the collection. They are smaller and less rugose in condition than the males, but the general form of the body is the same, also the arrangement of the ridges and tubercles. As mentioned above, a difference occurs in the ornamentation and form of the legs. No dissimilarity is noticed in the mouth parts.

Size:—length 11mm., breadth 6mm., being the measurements of the largest specimen—a male.

Colour:—in spirit, pale with brownish markings; older specimens darker; epimera lighter than remainder of dorsal surface.

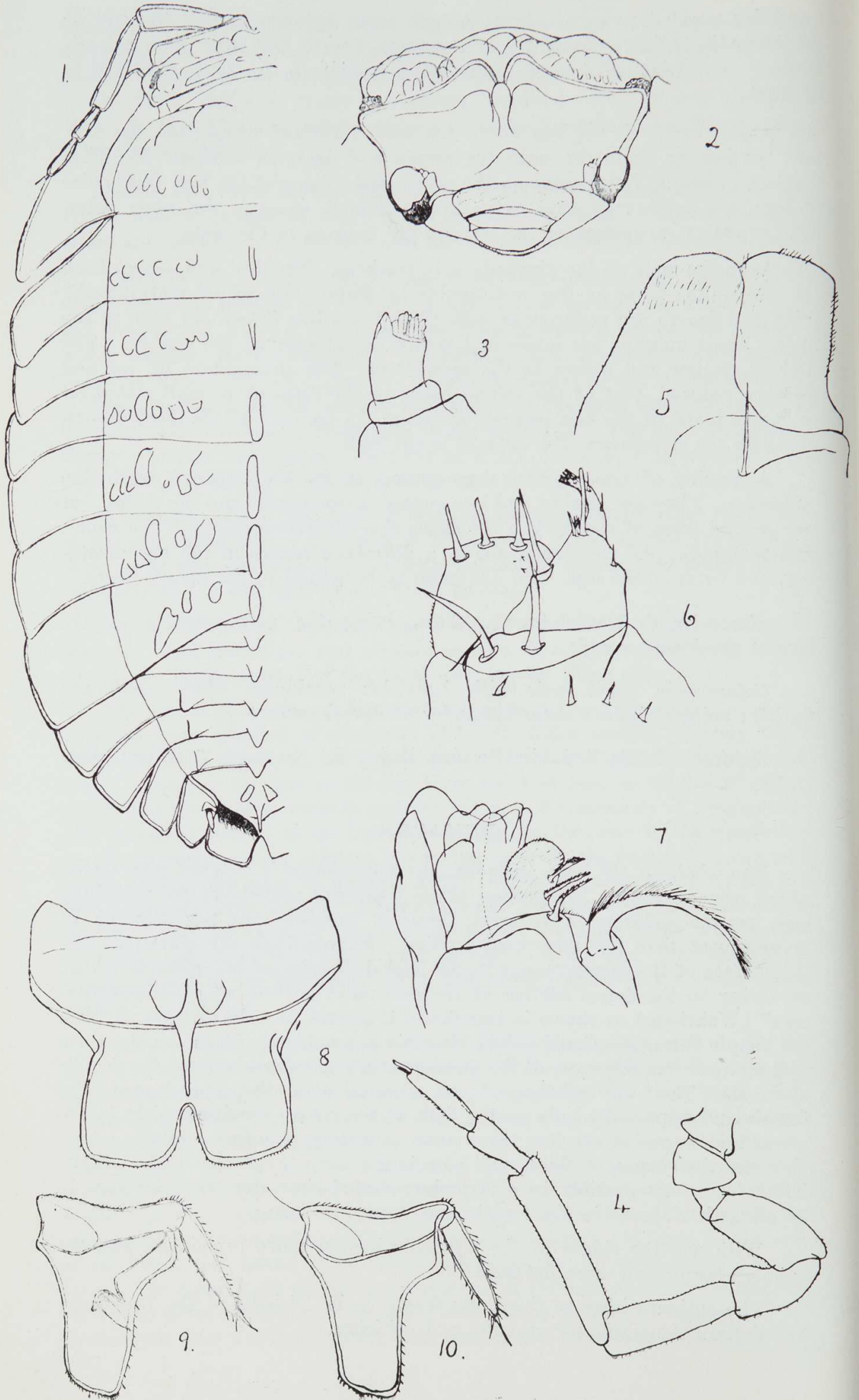
Habitat:—Little Red Lily Swamp, Roper R., Northern Territory, Australia.

REMARKS.

The whole of the body including the appendages is covered with scales, which vary in form. The portion of each segment underlying the preceding one, has the scales more flattened, fewer in number and less tile-like in arrangement than the uncovered portion. Simple setae are scattered over the surface of the segments and on the lateral margins of the epimera. Also, occurring on the dorsal surface of the uncovered portion are "schuppenborstien" (Wahrberg) as shown in text-figure 1, 2c and 2d. Setae differing from the simple form, are found on the thoracic appendages. Those on the form text-figure 1: 1a, occur on all the mesosomatic appendages of both the female and male. The form text-figure 1: 1b, is found on all the appendages of the female and apparently only on the fifth of the male. Confined solely to the merus and carpus of the first three pairs of male appendages and also occurring on the carpus of the fourth pair is the form text-figure 1: 1c. This latter form may possibly be a secondary sexual character, as it appears to be altogether absent in the female and immature forms.

With age the ridges of the segments become more prominent, and the epimera larger and more flattened.

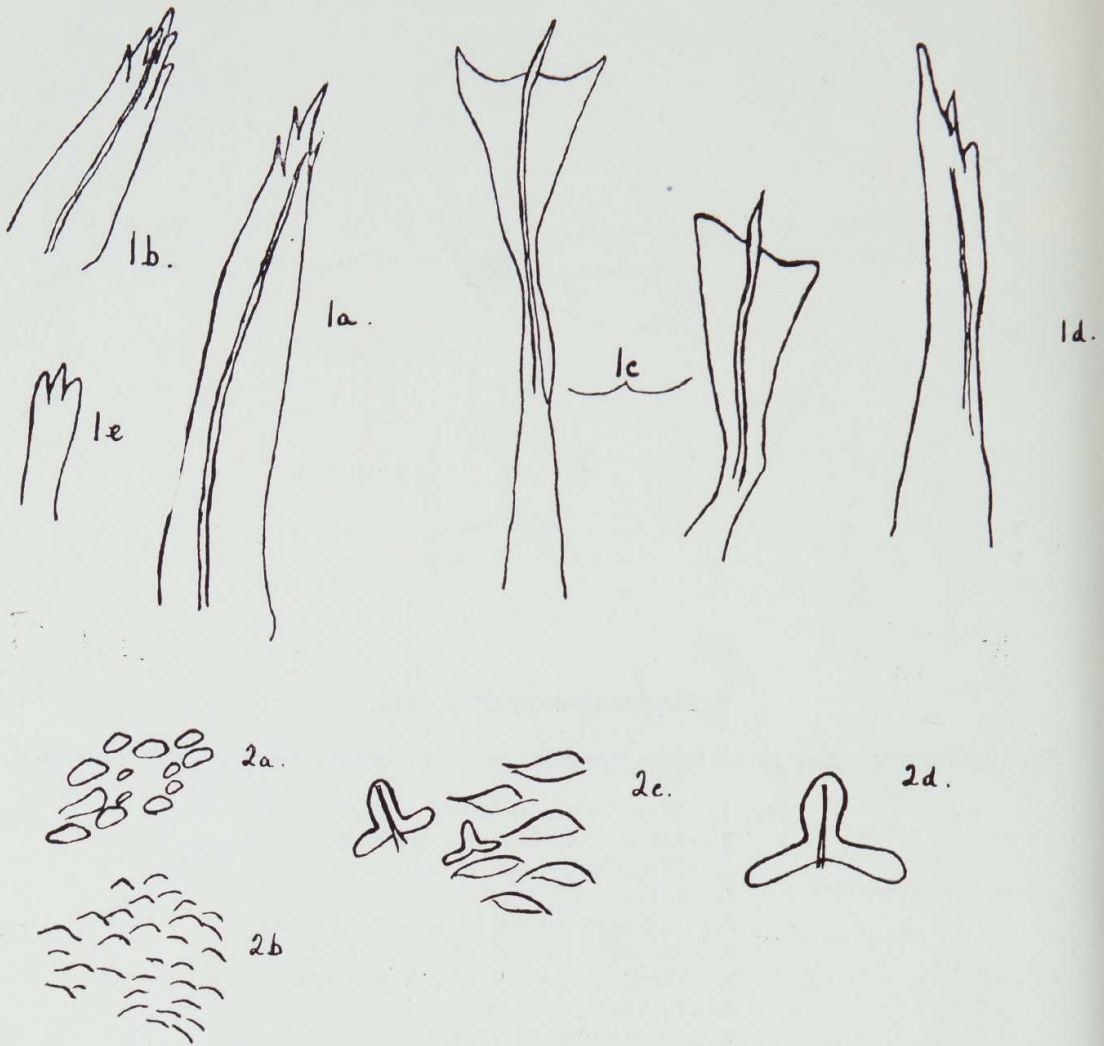
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Explanation of Plate III.

All the figures refer to *Cubaris spenceri* and are drawn from a male specimen.

- Fig. 1. Dorsal view of entire animal.
2. Anterior view of the cephalon.
3. Terminal portion of antennule.
4. Antenna.
5. Terminal portion of second maxilla.
6. Terminal portion of maxillipede.
7. Terminal portion of left mandible.
8. Terminal segment.
9. Dorsal view of uropod.
10. Ventral view of uropod.



Explanation of text-figure 1.

Types of setae and scales found on the body and appendages of *Cubaris spenceri*.

- 1.—*Mesosomatic appendages*: a, All of male and female; b, All of female and 5th of male; c, 1st-3rd of male, confined to merus and carpus and 4th of male confined to carpus; d, 1st-3rd of male confined to propodus; e, 6th and 7th of male.
- 2.—*Body*: a, Scales occurring on covered portion of mesosomatic segments; b, Scales occurring on uncovered portion of mesosomatic segments; c, Enlarged scales as seen on uncovered portion; d, Form of "schuppenborsten."

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